STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

COMMONWEALTH EDISON COMPANY	:	
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Application of COMMONWEALTH EDISON COMPANY, for a Certificate of Public Convenience and Necessity, Pursuant to Section 8-406 of the Illinois Public Utilities Act, to construct, operate and maintain a new 138,000 volt electric transmission line in Cook County, Illinois.	:	No. 01-0513

Direct Testimony of

THOMAS E. WIEDMAN

Director of Transmission Planning
Commonwealth Edison Company

Q. Please state your name and business address.

A. Thomas E. Wiedman. My business address is Commonwealth Edison Company, Two Lincoln Centre, Oakbrook Terrace, Illinois 60181-4260.

Q. By whom are you employed and in what position are you employed?

A. I am employed by Commonwealth Edison Company ("ComEd") as its Director of Transmission Planning.

Q. When did you assume this position?

A. I began serving in my present position in October, 2000.

Q. How long have you been employed by ComEd?

A. I have been employed by ComEd for 31 years.

Q. Please describe your responsibilities as ComEd's Director of Transmission Planning.

A. As ComEd's Director of Transmission Planning, I am responsible for determining where and when we need to reinforce ComEd's transmission system. I direct the development of plans and criteria for transmission reinforcement including the coordination of transmission planning at the regional level.

Q. Please briefly describe the prior positions which you have held at ComEd.

A. Prior to assuming my present position as ComEd's Director of Transmission Planning, I served as ComEd's Director of Bulk System Security. In that position I was responsible for the daily operations of the interconnected ComEd transmission system including its

security. I was previously Director of System Protection and Control, System Protection Engineer, Transmission Planning Section Engineer, Relay Planning Section Engineer, and other positions in planning, system protection planning and design, and field testing.

Q. Please describe your educational background.

A. I have a Bachelor of Science degree in Electrical Engineering from the University of Illinois at Chicago which I received in 1970. I hold a Master of Business Administration from Loyola University which I received in 1974. I also hold a Master of Science in Electrical Engineering from the Illinois Institute of Technology which I received in 1993.

Q. Have you served as a member of any professional organizations, committees, or task forces relating to electric utility system planning and engineering?

A. Yes. I am a registered professional engineer in the State of Illinois. I am also currently the Vice-Chairman of the Mid-America Interconnect Network, "MAIN," Operating Committee. I am a Senior Member of the IEEE Power Engineering Society and past member of the IEEE Power System Relaying Committee.

Q. Are you familiar with the planning and design of electrical transmission systems, and ComEd's bulk power system in particular?

A. Yes. Except for the period during which I was Director of Bulk System Security, which dealt with operation of the bulk power system, my entire career has been devoted to the planning, design, and protection of the ComEd system.

Q. Are you familiar with the Petition filed in this proceeding?

A. Yes I am.

Q. How have you become familiar with it?

A. I participated in and directed the studies we did on the need for this project.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to explain why the proposed line is needed in order for ComEd to continue to operate and maintain an adequate, efficient, and reliable bulk power transmission system at least cost.

Q. Please explain how ComEd's transmission and distribution system delivers electricity to customers.

A. ComEd receives electricity from a variety of sources, including base load nuclear and fossil fuel generating stations and peaking units. The purpose of the transmission and distribution system is to reliably deliver this power to customers, at the voltage and quantity required.

A network of 765 kV, 345 kV and 138 kV transmission lines form the backbone of ComEd's system. These transmission lines move "bulk" power from the various sources of supply to the areas of ComEd's service territory where customer demand exists. There, the power is converted by a transformer to the lower voltages used for distribution to ComEd customers. ComEd's transmission system also provides the principal means for the flow of power required for inter-state transactions and to serve ComEd's wholesale customers.

In central Chicago, as the system is presently configured, there is also a network of 69 kV lines. At the Jefferson or Crosby substations, power from the 138 kV system is transformed to 69 kV, and then transmitted to one of six satellite substations (Lakeview, Ohio, U of I, Vernon Park, Plymouth Court and Dearborn). This method of transmission is described as radial in that each of the satellite substations is supplied by only one major substation, either Crosby or Jefferson. This power is then transformed to 12 kV and distributed throughout the central business district.

Q. What factors must be considered in operating and maintaining an adequate, efficient, and reliable transmission system?

A. A transmission system must have capacity sufficient to meet projected power flows while maintaining required voltage levels and system stability, in both normal and contingency conditions.

Q. Why do you study contingency conditions as well as normal operating conditions?

A. Generating units and major transmission system components cannot be assumed to be in operation 100% of the time. In addition to scheduled maintenance requirements, unscheduled outages can occur. Therefore, a level of reliability must be maintained appropriate to the number of customers at risk to possible system failures, balanced by providing service at a reasonable cost. For example, the transmission system must, at a minimum, continue to operate adequately with any single line or transformer in an area out of service. In addition, where the behavior of the transmission system in an area is heavily dependant on the output of a particular generating unit or units, it is necessary to

consider the ability of the system to continue to operate when that generating unit is unavailable.

Q. Are there any other factors which should be considered in evaluating alternative plans, once the need for transmission system reinforcement is demonstrated?

A. Yes. Effects on other portions of the existing transmission system must be considered. A plan must also be capable of being constructed and operated within the time required to meet the need. For example, required real estate must be available. The plan should avoid excessive equipment damage or widespread service outages in case events more severe than planned occur. Finally, a suitably robust plan should also consider longer-range requirements for system operation and future growth.

Q. Does ComEd regularly assess the adequacy and reliability of its transmission system?

A. Yes. ComEd constantly collects data on power flows and voltage levels on all major components of its transmission system. In addition, planners forecast the loads to be experienced in the future (whether do to retail load growth, interchange, or wholesale transactions) over a time horizon that varies in length depending upon the portion of the system being studied. This data is used to perform a variety of studies like those that I outline above to determine if, and when, changes are required to the transmission system.

Q. What actions are taken based on these studies?

A. When the data shows that a change is required, ComEd employees, both in the planning and design engineering areas, initially identify potentially feasible means of meeting the needs that are consistent with sound engineering and system planning practices.

Depending on the nature of the need, there may be several such alternative plans. Consistent with ComEd's obligations to provide reliable service to its customers, we then determine which of the alternatives are technically feasible and potentially cost-effective. Where there is more than one such option, ComEd assesses the advantages and disadvantages of the various alternatives and selects as the proposed plan the option that would provide adequate, efficient and reliable service to customers at the lowest cost.

Q. What is the time horizon over which alternative transmission plans are studied?

A. Transmission plans are developed by considering a variety of future periods. The ultimate future utilization of each transmission right-of-way is planned at the time of acquisition. These ultimate long-term plans are not driven just by specific load forecasts and generation scenarios over any particular period, but by the need to provide for efficiently coordinated and reliable use of substation sites and transmission rights-of-way.

Much shorter planning horizons are used when making commitments for transmission system development steps because of the number of factors that can significantly impact such plans. Unlike distribution system facilities, the need for which are primarily driven by localized demand forecasts, transmission facility loadings are also influenced by energy resource developments and transmission facility developments, both internal and external to the service territory, as well as by power transfers conducted across the interconnected transmission system. For these reasons, detailed transmission studies are usually limited to a five to ten-year future period, depending on facility lead times, and budget commitments are generally limited to a three to five-year horizon.

Longer term projections of probable transmission needs can be made based on shorter term detailed system studies, but with less certainty.

Q. Why are the proposed lines necessary for ComEd to provide adequate, efficient, and reliable service to ComEd's customers?

A. The lines are needed for two reasons. First, the lines will improve the reliability of ComEd's service to its customers by providing a backup to ComEd's TSS 45 Jefferson. Second, the lines will, along with additional lines to be completed by 2003, allow ComEd to supply future substations and relieve projected overloads on the current lines running between TSS 45 Jefferson, TSS 58 Grand, TSS 34 Kingsbury, and TSS 82 Crosby.

Q. Please describe the need to provide a backup to ComEd's TSS 45 Jefferson.

A. Presently, there are five 69 kV substations in central Chicago, all of which are served radially via 69 kV lines extending from Jefferson TSS. These are TSS 65 Ohio, TSS 87 Dearborn, TSS 49 Plymouth Court, TSS 44 Vernon Park and Y652 University of Illinois. A catastrophic outage at Jefferson would therefore threaten the electric supply to a substantial portion of central Chicago.

Q. How much load does ComEd serve via these Jefferson-fed, 69 kV substations?

A. Approximately 440 megawatts.

Q. Is the loss of Jefferson TSS a hypothetical possibility?

A. It is a real possibility. During the summers of 1999 and 2000, we did experience outages at Jefferson, and they caused outages in central Chicago.

Q. How would the proposed lines improve the situation?

A. The proposed lines would supply a new substation near Jefferson, to be designated Dekoven TSS 90. The Dekoven substation would include two 200 MVA 138/69 kV transformers and a 69 kV bus. Through this 69 kV bus, Dekoven would provide an additional source of 69 kV supply to the downtown substations I mentioned. If supply were lost from Jefferson, Dekoven would provide an immediate backup supply.

Q. When does ComEd propose to have the new lines in service?

A. We would like them in service by next summer, 2002.

Q. You also mentioned another need for these lines, as part of ComEd's future projects. Please explain.

A. The Fisk-Dekoven 138 kV lines are part of a larger reinforcement project to be completed by 2003 as part of ComEd's Chicago Optimization Plan. The projects comprising this plan are described in the testimony of Michael Rowe.

Q. Briefly, what is the need for the lines as part of ComEd's plan?

A. Over the next few years, we forecast overloads on the 138 kV lines extending from TSS 45 Jefferson to TSS 82 Crosby during contingency conditions. We therefore plan to build new lines and substations to relieve those overloads. What we will be proposing to the Commission shortly, in another docket, is to build those new lines by the summer of 2003. Our plan is to install a 138 kV bus at Dekoven, and this will provide the first leg of the new lines to a new substation to be known as TSS 148 West Loop, which will take some of the load now served by Crosby.

Q. Did you consider any system alternatives to building a substation at Dekoven?

A. Yes, we considered a number of alternatives. First, we considered rebuilding TSS 45 Jefferson with new, more reliable equipment, specifically with gas-insulated (GIS) switchgear. This would provide higher reliability, and would reduce the risk that a single failure would cause the outage of the entire substation.

Q. Why did you reject this option?

A. While the risk of common mode failure would be reduced, it would not be eliminated. For example, the 69 kV bus, and the four 138-69 kV transformers that feed the 69 kV bus, would still be vulnerable to a single outage. Moreover, this alternative is not least cost, because it only defers the lines coming up from Fisk – needed in 2003 for the Chicago Optimization Plan, as I've discussed – by one year.

Q. What else did you consider?

A. We considered building a substation in the vicinity of Dekoven and Jefferson that would supply 69 kV power directly from 138 kV. We call this the Arthington alternative because of the particular location in the area where we would likely have located such a substation, adjacent to Jefferson.

Q. What would ComEd construct for the Arthington alternative?

A. We would build a 69 kV GIS bus, a single 138-69 kV transformer, two 138 kV lines from Fisk to the new Arthington substation, and two 69 kV tie lines to TSS 192 Ridgeland.

Q. Why is ComEd's proposed scheme better?

A. ComEd's proposed scheme costs less due to the difference in the cost of the two types of substations. Also, due to the 138 kV bus in the Dekoven proposal, Dekoven provides the first leg of the new lines headed north, as I described above. And, in either proposal, we would need to build the proposed lines to the Dekoven-Jefferson-Arthington area. This alternative was basically a stand-alone substation, instead of one that would integrate into the overall optimization plan.

Q. Did you consider any other sources of supply for your proposed Dekoven substation?

A. Yes. We considered whether it would be feasible to supply Dekoven through new lines from TSS 153 Taylor, TSS 137 Washington Park or from TSS 174 University. The latter two, Washington Park and University, would involve much longer lines at much greater cost, and would require additional upgrades to the system (for example, new lines to feed those substations).

Q. With regard to lines from Taylor TSS 153 to Dekoven, why did you conclude that the proposed project is superior?

A. Serving the new Dekoven substation from Fisk is superior in reliability, diversity of supply to the central business district of Chicago, and the advantage of having Dekoven up and running in 2002. TSS 153 Taylor is currently supplied by a single 345 kV line. It has two autotransformers which supply sixteen 138 kV lines. The Taylor TSS is already the source for the following stations in Chicago: Sears, IC Air Rights, LaSalle and State (State will be installed by the summer of 2002). Adding two more 138 kV lines would increase the dependency on a single substation which already serves a substantial load in the area.

One of the key advantages of supply from Fisk is the speed with which we can accomplish the construction. Because much of the Fisk-Dekoven route has available duct space, we can have Dekoven in service by 2002. By contrast, although Taylor-Dekoven is a shorter distance, there are no free ducts between Taylor and Dekoven, so we would need to build the necessary conduits. The project would require negotiating with Metra to cross the Burlington Northern railroad tracks, using tunneling, directional boring, or an overhead segment. These complications put the 2002 service date at risk.

For these reasons, we do not consider a Taylor – Dekoven line to be a viable alternative for providing adequate, efficient, and reliable service.

Q. Are there any other reasons why you prefer supply from Fisk?

A. Yes. We know that Midwest Generation is committed to installing new generation at its Fisk station – or if not at Fisk, at its Crawford station, which is directly connected to Fisk. To make efficient use of this new capacity, we need to build new lines from Fisk to places where it is needed on ComEd's grid. The proposed Fisk to Dekoven lines will do just that. By contrast, no new generation could be built at Taylor.

Q. Does this complete your testimony?

A. Yes, it does.